

A HIGH THROUGHPUT BIOLOGICAL HEART RATE MONITOR THAT IS
MOLECULARLY DETERMINED

ABSTRACT OF THE DISCLOSURE

This invention provides for a chamber and system designed for
use in assaying drug effects on heart rate. The chamber consists
of a series of wells, each 3mm by 3mm in inner diameter. Cardiac
myocytes disaggregated from neonatal animals are plated onto the
bottom of each well and grown under standard tissue culture
conditions. The chamber holds from 24-96 such wells. When drugs
are to be assayed, the cells in each well are loaded with a calcium
sensitive dye and the beating rate in each is monitored with a
photodiode. Drug is added in graded concentrations to each well,
and equilibrated and effects on rate are observed. This construct
permits use of a cell based bioassay for the study of drugs or
agents that may alter cardiac rate. This invention can be used in
high throughput screening of drugs to evaluate/predict their
effects on cardiac rate and rhythm. Further provided for by this
invention is a vector which comprises a compound which encode an
ion channel.